

They Have, and What They're Learning is Pretty Neat!

Vast imaginations and burning curiosity feed the minds of children. Their verbalized thoughts can be deeply insightful, often spontaneous, refreshing, funny, with an innocence not found in old age.

"As I watch the water of the Delaware Bay ruffle, I can't help but think to myself the importance of the bay to the animal society. The bay is a wonderland of living creatures. As the life cycle goes on, the bay stays the same in its inner beauty. I personally love the bay. I like to fish and walk along the sparkling shores of the bay. The bay is also very fragile in its workings. If the cycle is disturbed by too much industry, the animals will perish in mankind's greedy hunt for money. The fish and other organisms are the owners of the bay."



Clifford Fair II, a tenth grader at Philadelphia's Northeast High School, depicts, in an award-winning drawing, the obstacles anglers can encounter when fishing in polluted waterways. Winning drawings are displayed on the city's SEPTA buses and subway cars as part of a pollution prevention advertising campaign. Other posters are found throughout this chapter.

Grayson Hooper, an elementary school student in New Jersey's Maurice River Township, wrote these words a few years ago as part of an Earth Day celebration. The students were asked to put on paper what it means to grow up along the Maurice River, a tributary of the Delaware Bay and part of the National Wild and Scenic Rivers System. From the responses, it's clear they've figured out how important it is to protect the fragile environment around them.

RIVERS: CLASSROOMS FOR CREATIVE EXPRESSION

In May 2000, the commission's executive director, Carol Collier, was the keynote speaker at the Delaware Watershed Education Student Leadership Summit, another annual event consisting of a non-competitive forum for 7th through 12th grade students held at a riverside retreat center downstream of the Delaware Water Gap. The summit featured research on local watersheds while focusing on problem-solving skills and stewardship for the environment.

"I strongly believe that a watershed is the correct unit for environmental management, whether it is a large watershed like the whole Delaware River Basin, or a smaller one like Bushkill Creek," noted Ms. Collier.

"While the DRBC needs to look at the big picture, most improvements will be made at the local watershed level. Watershed decisions - quality goals, water use, and processes to address these issues - are best made and implemented by watershed partnerships with significant input from local interests. That is why providing a forum for students to share information and ideas about their own local watersheds is so important."

There were presentations by two other DRBC employees at the summit: Warren Huff, head of the Informational Services Branch, spoke on using Geographic Information Systems (GIS) to explore the Delaware River, and Clarke Rupert, the DRBC's assistant public information officer, sketched the commission's unique history.

The event, organized by the Pennsylvania Bureau of State Parks and co-sponsored by Easton Area High School, Wildlands Conservancy, and the commission is living testament that rivers throughout the basin are becoming classrooms for student research and creative expression.

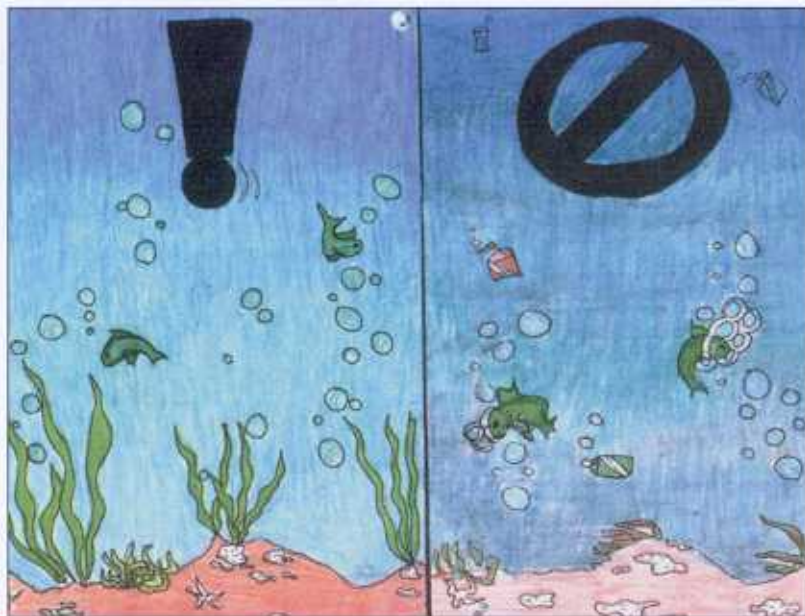


Shirley Lu, a member of the kindergarten class at Solis Cohen School.

KIDS AND CLEAN WATER

Creativity has been the common ingredient in poster contests designed to teach public and parochial school students in Philadelphia ways to prevent pollution from storm water runoff. The drawings end up in calendars titled "Clean Water Begins and Ends With You."

Images on the calendar panels depict such things as litter pick-ups, recycling of motor oil, empty potato chip bags riding a crest of water towards a storm inlet, a dog with a smile of approval over its master's proper disposal of trash, fish skeletons swimming in polluted water, fish entangled in



Clara-Lynne Bah, an eighth grader at Francis de Sales School.

plastic six-pack wrappers, and a bewildered young fisherman hooking a toilet seat in a litter-strewn stream.

Contest sponsors include the Philadelphia Water Department, the Partnership for the Delaware Estuary, Inc., and Pennsylvania Coastal Zone Management Program. DRBC staffers have served as contest judges and participated in the awards ceremony. Funds have been provided through "Growing Greener" grants from the Pennsylvania Department of Environmental Protection.

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DRBC STAFF HELPS TEACHERS DEVELOP CLASSROOM TOPICS

Two New Jersey high school science teachers spent much of the summer of 2000 with the DRBC participating in the 21st Century Science Teacher Skills Project.

Kirsten Conover of Moorestown High School and Phil Levy of Lacey Township High School presented the results of their practical experience project, "Biological and Chemical Monitoring of the Lower Delaware River and Its Tributaries," at a September 2000 symposium hosted by Monmouth University in West Long Branch, N.J. This event also featured presentations by 10 additional teachers who participated in five other projects during the summer.

The two teachers helped DRBC staff members gather biological samples at a number of Delaware River tributaries in New Jersey for later assessment, as well as record physical data and field observations. They also assisted in the continued chemical monitoring of water quality along the lower Delaware River and its feeder streams.

Kirsten and Phil used what they learned to develop a number of classroom activities. One is a short course in limnology, or the study of inland water bodies, that can be incorporated into the ecology section of a biology curriculum.

Kids ... Go Figure!

Monmouth University piloted this summer program in an effort to improve high school mathematics and science teachers' understanding of how the disciplines they teach are used in society. The primary objective of the program was to enrich classroom teaching by giving teachers practical experience to solve current problems in science and technology.

Congressman Rush Holt (D-N.J.) sponsored the 21st Century Science Teacher Skills Project through a grant from the Fund for the Improvement of Post-Secondary Education.

EDUCATORS ENCOURAGED TO SHARE INFORMATION

"Ed. Web," an on-line resource to help teachers and students of all ages learn about the Delaware River Basin and general water issues, continues to grow in popularity. During its first eight months of existence during the year 2000 it was accessed over 1,600 times; the number was climbing at year's end.

The Internet site, created by the Delaware River Watershed Education Task Force and hosted by the commission, can be found at www.drbc.net (choose "Ed. Web").

"Ed. Web" visitors can access maps, general information about the Delaware River Watershed, educational resources and lesson plans, environmental field trip ideas, a student showcase, and upcoming educational opportunities throughout the basin.

Educators are invited to share information, such as lesson plans about a watershed, a favorite web

site, or a recommended field trip location. Those interested in contributing to "Ed. Web" should contact DRBC Assistant Public Information Officer Clarke Rupert at (609) 883-9500, ext. 260, or by e-mail (crupert@drbc.state.nj.us).

Original members comprising the Delaware River Watershed Education Task Force include representatives from Alliance for a Sustainable Future, DRBC, Heritage Conservancy, National Park Service, New Jersey Department of Environmental Protection, Partnership for the Delaware Estuary, Inc., Pennsylvania Department of Conservation and Natural Resources, Pocono Environmental Education Center, Princeton University, and Stroud Water Research Center.

People interested in joining the task force should contact Russ Johnson, Heritage Conservancy, at (215) 345-7020, ext. 107. (rjohnson@heritageconservancy.org).



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"Ed. Web" is a work in progress and educators are invited to share information, such as lesson plans about their watershed, a favorite web site, or a recommended field trip location. Persons interested in contributing should contact Clarke Rupert at (609) 883-9500 ext. 260 or by e-mail at crupert@drbc.state.nj.us

"Ed. Web" is a project of the Delaware River Watershed Education Task Force, an informal group including representatives from Alliance for a Sustainable Future, DRBC, Heritage Conservancy, National Park Service, New Jersey Department of Environmental Protection, Partnership for the Delaware Estuary, Pennsylvania Department of Conservation and Natural Resources, Pocono Environmental Education Center, Princeton University, and Stroud Water Research Center.



DRBC HELPS FUND YOUTH WATERSHED CONFERENCE

Over 600 seventh graders attended Water Festival 2000 at Wesley College in Dover, Del., on June 1, 2000 to focus on protecting the state's watersheds.

It was a fun-filled, one-day event featuring interactive presentations and hands-on exhibits staffed by experts from public and private organizations, corporations, and state and federal agencies. The DRBC helped fund and sponsor the event and was among the scores of exhibitors.

Kevin Donnelly, director of the Division of Water Resources in Delaware's Department of Natural Resources and Environmental Control (DNREC) and an alternate commissioner on the DRBC, hosted the opening ceremony.

All the students who attended the festival had been through a seventh grade science program that includes a new and innovative Delaware Watershed Curriculum. Development of the Watershed Unit resulted from an intensive two-year effort involving seventh grade science teachers, watershed scientists, other environmental educators, personnel from DNREC and the Delaware Department of Education.

The unit features a variety of activities and equipment applicable to lab, classroom, and field settings. At last count, more than 27 teachers in 20 of Delaware's middle schools were taking advantage of the new curriculum.

SNAPSHOT: A MASSIVE COMMITMENT TO CLEAN WATER

The 5th annual Water Snapshot was held April 14-30, 2000, to cast attention on Earth Day and provide an opportunity for the young and old, experienced and first-timers, to collect information about the water quality of their favorite water body in the Delaware River Watershed.

Some participants conducted a visual assessment while others used simple test kits or the hi-tech instruments of seasoned scientists to collect data. The results were recorded on summary sheets provided to participants by the DRBC.

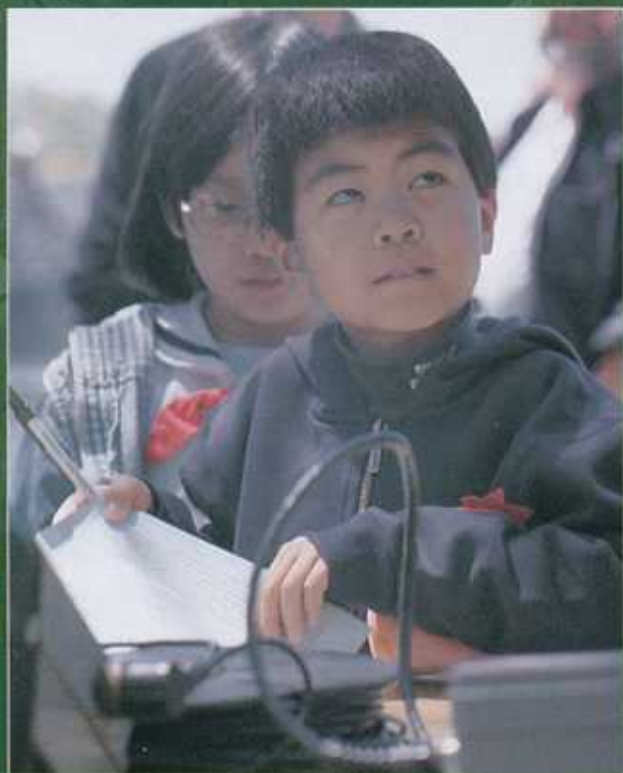
"The results do not reflect exact science, but instead create an awareness of local watersheds and the crucial role they play in all of our lives," notes Carol Collier, the commission's executive director.

A donation from the William Penn Foundation enabled the DRBC to offer a limited number of free test kits to interested schools, organizations, and individuals on a first-come, first-served basis. In addition to being distributed within the basin, kits were dispatched to an eighth-grader in Woodbridge, Va., and an 11th grade class in Deltona, Fla., after word of the offer spread via the commission's web site.

As a result of the DRBC's active participation in Water Snapshot since its inception in 1995, the commission received the "First Annual Excellence in the Estuary Award for Citizen Monitoring" from the Partnership for the Delaware Estuary, Inc. The partnership recognized the commission for its leadership role in "Snapshot 2000, which united and educated diverse audiences to build stewardship for the region's waterways."

Training for participants of Snapshot 2000 was provided by the Delaware Riverkeeper Network, Pennsylvania Department of Conservation and Natural Resources (DCNR).





Steven Yang, 8, of West Windsor, N.J., awaits further instructions from DRBC staff as he samples the quality of Delaware River water during the annual Shad Fest held in Lambertville, N.J. The celebration heralds the return each spring of this migratory fish species which has made a remarkable resurgence in numbers as a result of improved water quality in the river. The Shad Fest is one of the stops for DRBC staff who take to the waterways each year to participate in both Snapshot and Earth Day celebrations.

(Photo by Chris Roberts)

Delaware Department of Natural Resources and Environmental Control (DNREC), and the Delaware Nature Society.

In addition to the DRBC, the Water Snapshot 2000 Steering Committee included representatives from DNREC, DCNR, the Riverkeeper, National Park Service, New Jersey Department of Environmental Protection, New York State Department of Environmental Conservation, Pennsylvania Department of Environmental Protection, Pennsylvania Environmental Council, Pocono Environmental Education Center, Upper Delaware Council, U.S. Environmental Protection Agency, and the U.S. Geological Survey.

A brochure prepared by the DRBC titled "Snapshot: A Report Card on the Health of Delaware River Basin Waterways" is available to the public. It details the event's history, describes some of the past participants (governors, little kids, playful dogs) and explains the common water quality components (like dissolved oxygen) used in monitoring programs. The brochure can be obtained free of charge by contacting the commission. It also can be downloaded from the DRBC's web site.

THE ULTIMATE CLASSROOM: THE RIVER

The Bucks County Audubon Society and the society's Pennsylvania Chapter presented a five-day workshop July 17-21, 2000, for local teachers that focused on the Delaware River Basin's cultural and natural history.

The course emphasized relationships between local watersheds and the greater Delaware River bioregion, helping the teachers to better utilize regional resources in their classroom instruction. One day was spent in the ultimate classroom - the river itself - as the teachers canoed from Raubs Island to Upper Black Eddy.

David Pollison, at the time head of the commission's Planning and Implementation Branch, and Chris Roberts and Clarke Rupert from the commission's Public Information Office, were among the guest speakers at the event.